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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,547	07/30/2003	Patrick A. C. Gane	239126US0CONT	6504
22850 7590 02/23/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER CORDRAY, DENNIS R	
			ART UNIT 1731	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/23/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/629,547

Applicant(s)

GANE ET AL.

Examiner

Dennis Cordray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13, 16-37, 39-44 and 46-53 is/are rejected.
- 7) ☒ Claim(s) 4, 24, 38, 45, 46 and 50 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/857217.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/4/2006 have been fully considered and are persuasive. Applicant's arguments, see pp 12-15, filed 12/4/2006, with respect to all rejections of claims under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made as detailed below.

Claim Objections

2. Claims 24, 46 and 50 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 24 recites a preparation comprising at least one aqueous suspension according to Claim 1. The claim is directed to a composition but fails to recite any further limitation to the composition than exists in the parent claim. The recitation of "for use in papermaking" is merely an intended use that does not further limit the structure of the composition.

Claim 46 recites a preparation comprising at least one aqueous suspension according to Claim 21. The claim is directed to a composition but fails to recite any further limitation to the composition than exists in the parent claim. The recitation of "for use in papermaking" is merely an intended use that does not further limit the structure of the composition.

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Claim 50 recites a paint or coating comprising the aqueous suspension claimed in Claim 21. The claim is directed to a composition but fails to recite any further limitation to the composition than exists in the parent claim. The recitation of "a paint or coating" does not further limit the structure of the composition absent any other ingredients.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 26-36, 48 and 51-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26-27 and 29 recite the limitation "the aqueous solution" in Claim 1.

There is insufficient antecedent basis for this limitation in the claim.

Claims 30-34 recite the limitation "a suspension or preparation" in Claim 1.

There is insufficient antecedent basis for this limitation in the claim.

Claims 51 and 52 recite the limitation " a suspension or preparation " in Claim 21.

There is insufficient antecedent basis for this limitation in the claim.

Claim 26 recites a process for manufacturing a sheet of paper with the aqueous solution claimed in Claim 1, but since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a process without any active, positive steps delimiting how this process is actually practiced. In any case, the

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aqueous suspension of Claim 1 is a suspension of treated calcium carbonate (CaCO_3) and cannot be formed into a sheet of paper. The latter portion of the claim appears to be directed to properties of a formed paper treated with the aqueous suspension, but fails to provide any limitations to the claimed process.

Claim 26 further recites, in reference to the aqueous suspension of Claim 1, the aqueous solution modified as described in a), appearing to indicate that the portion of Claim 1 labeled a) is part of a process. However, Claim 1 is a composition claim and recites no process steps. It is therefore not clear how the aqueous suspension of Claim 1 is modified in a).

Claims 30, 33-34, 48, 51 and 53 recite a process for manufacturing a sheet of paper or board, but since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a process without any active, positive steps delimiting how this process is actually practiced. For example, Claim 30 recites "incorporating a suspension or preparation according to Claim 1 in a process of manufacture of the sheet in terms of the preparation of a thick stock or a thin stock". It is not clear where or how the suspension or preparation is intended to be incorporated. Is it mixed into the stock? Is it applied to the stock preparation equipment to clean, coat or lubricate the equipment? Is it added to the fibers in the digestion or pulping stage of the fibers to prepare the thick stock? Is it added to the thick stock to dilute it to form a thin stock? Claims 33, 48, 51 and 53 suffer from a similar lack of clarity.

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Claim 48 recites "manufacturing a sheet of paper with the aqueous suspension claimed in Claim 21." The aqueous suspension of Claim 21 is a suspension of treated CaCO_3 and cannot be formed into a sheet of paper.

Claims 28, 35-36 depend from and thus inherit the indefiniteness of the above rejected claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 9, 11-12, 16-19, 21-22, 24, 26, 28-30, 35, 37, 43, 46, 48 and 50-51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Passaretti (5043017) as evidenced by Plumstead (2178606).

Claims 1-3, 9, 17, 19: Passaretti discloses a process for treating a slurry of either precipitated CaCO_3 or fine ground limestone (natural CaCO_3). The pH of a slurry

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of the CaCO_3 is adjusted to 8.0 using CO_2 , thus producing reaction products of the carbonate with CO_2 . Phosphoric acid was added to and reacted with the slurry, thus producing reaction products of the carbonate with a medium strong to strong H_3O^+ ion provider. The pH of the slurry rose to 8.0 without adding a base after a few minutes and was still 8.0 after 24 hours (Abs; col 5, lines 54-59; col 6, lines 37-47; col 7, lines 45-64, Example 3).

Passaretti does not disclose that the CO_2 is gaseous; however, gaseous CO_2 is commonly used in the art and its use would have been obvious to one of ordinary skill in the art.

Passaretti does not disclose the weight of the paper produced. The composition disclosed by Passaretti contains all of the structural features of the claimed composition. The additional claimed properties of a paper add no further limitation to the structure of the claimed composition. The claimed properties imparted to a paper filled with the composition are inherent or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed properties in paper because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

With regard to Claim 3, Passaretti also discloses that sulfurous acid (H_2SO_3) can be used although phosphoric acid is preferred (col 4, lines 9-12).

Claim 5: Passaretti discloses that the CaCO_3 has a surface area from 7-11 m^2/g and a particle size of 0.7 to 1.4 μm (col 6, lines 41-45).

Claims 11-12, 16, 43: Passaretti discloses treatment with acid in the presence of CO_2 , thus at least part the treatment with CO_2 and acid occurs concurrently or in parallel. In addition, treatment with sulfurous acid also generates gaseous carbon dioxide from the carbonate material, thus also resulting in simultaneous or parallel treatment of the CaCO_3 with CO_2 and acid (if evidence is needed, see Plumstead, p 1, right col, line 53 to p 2, left col, line 3). Passaretti discloses that the pH is initially lowered to approximately 5 with the acid treatment, but then rises to 8.0 within a few minutes of mixing. Thus, the duration of steps a) and b) is between 0 and 10 hours and the pH of the suspension is beyond 7.5 after 1 hour without addition of a base. Note that the language of Claim 12 "may be repeated" makes the repetition of steps a) and b) optional, thus single a) and b) steps are also embodied.

Claims 18 and 37: Limestone is a natural CaCO_3 source usually in the form of calcite, and can also contain dolomite (if evidence is required, see the Encyclopedia Britannica Concise Encyclopedia, term = limestone).

Claims 21-22: Passaretti discloses the treated slurry or aqueous suspension (Col 7, lines 46-63, Example 4).

Claims 24 and 46: Passaretti discloses treatment of the CaCO_3 in a papermaking furnish (col 4, line 52 to col 5, line 8), thus disclosing a papermaking preparation comprising natural CaCO_3 , reaction products of the carbonate with CO_2 ,

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and reaction products of the carbonate with a medium strong to strong H_3O^+ ion provider at a pH of 8.0.

Claims 26, 28-30, 35, 48 and 50-51: Passaretti discloses that the treated pigment is used as a filler in paper or as a pigment in paint (col 3, lines 28-38), thus it would have been obvious to one of ordinary skill in the art to make a paint or a paper comprising the treated pigment. For the reasons previously stated, the claimed properties imparted to a paper comprising the composition are inherent or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed properties in paper. As stated above, Passaretti discloses treatment of the CaCO_3 in a papermaking furnish. Preparing a papermaking furnish is considered by the Examiner as equivalent to preparing a thick or thin stock.

5. Claims 10, 33-34, 36, 42 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passaretti.

Claim 10: Passaretti does not disclose the source for the CO_2 . However, gaseous CO_2 is readily available from suppliers (external sources), thus would have been an obvious option to one of ordinary skill in the art. In addition, when sulfurous acid is used in the treatment, gaseous CO_2 is generated in-situ.

Claims 33-34 and 53: Passaretti does not disclose the source of the fibers used in making a paper; however, it is well known to make filled papers using natural fibers from soft and hardwoods, grasses or other cellulosic sources as well as synthetic fibers.

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Making a paper using cellulosic wood fibers, including resinous or deciduous wood, and non-wood fibers would thus have been obvious to one of ordinary skill in the art.

Claim 36: Digital printing on a paper is a well known process and would have been obvious to one of ordinary skill in the art.

Claim 42: In the absence of teaching in the instant Specification of any particular benefit therefrom, the claimed CO₂ pressures would have been obvious to provide the amount of CO₂ required to bring the pH to 8, and could have been determined by one of ordinary skill in the art by routine experimentation.

6. Claims 6-7, 25, 27, 39-41, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passaretti in view of Tokita et al (4900620).

Passaretti does not disclose particles with surface areas higher than 11 m²/gm. Passaretti also does not disclose a process where CaCO₃ is added as a filler (impregnating the paper) and as a coating.

Tokita et al discloses an ink jet recording paper comprising a precipitated CaCO₃ filler and a coating comprising precipitated or ground CaCO₃. Suitable CaCO₃ has a surface area range from 1-30 m²/g (col 3, lines 16-27; col 4, lines 24-49). Thus CaCO₃ is known to those of ordinary skill in the art as a filler and as a coating material. A broad surface area range is also known.

The art of Passaretti, Tokita et al and the instant invention is analogous as pertaining to CaCO₃ fillers and coating materials for paper. It would have been obvious to one of ordinary skill in the art to treat CaCO₃ having the claimed surface area using

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the method of Passaretti in view of Tokita et al to impart acid stability to the particles for use in paper. It would also have been obvious to make paper by impregnating the paper with the treated CaCO_3 as a filler and by coating the paper as well known uses of the pigment.

7. Claims 13 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passaretti in view of Thomas (4359828).

Passaretti does not disclose the temperature of the treatment. Passaretti does disclose that the treatment can be performed in the papermaking furnish during the papermaking process (col 3, line 53 to col 4, line 8).

Thomas teaches temperatures of typical papermaking furnishes from 21.1 to 93.3 °C (col 6, line 64 to col 7, line 4).

The art of Passaretti, Thomas and the instant invention is analogous as pertaining to treatment of papermaking stock. It would have been obvious to one of ordinary skill in the art to treat the CaCO_3 at the claimed temperature in the process of Passaretti in view of Thomas as a typical temperature of the papermaking furnish where the treatment of Passaretti is conducted.

8. Claims 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Passaretti in view of Stewart et al (4732748).

Passaretti does not disclose drying the treated CaCO_3 containing aqueous suspension.

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Stewart et al discloses a finely divided CaCO_3 opacifying filler in papermaking that is useful as an aqueous slurry (suspension) or as a dry filler (Abs). The filler can be shipped and stored as an aqueous suspension or as a filter cake, centrifuge cake or spray dried powder (col 4, lines 25-30).

The art of Passaretti, Stewart et al and the instant invention is analogous as pertaining to the use of CaCO_3 as a filler in papermaking processes. It would have been obvious to one of ordinary skill in the art to dry the treated CaCO_3 containing suspension of Passaretti in view of Stewart et al to provide a shippable or storable product having lower weight and volume, thus having lower shipping and storage cost.

9. Claims 8 and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Stewart et al or Plumstead (2178606).

Claims 8 and 23 are product-by-process claims. The product of Stewart et al (col 4, lines 25-30) or Plumstead (p 2, left col, lines 19-22) appears to be the same as or similar to the claimed product, dried CaCO_3 , although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the product of the product-by-process claims 8 and 23 as opposed to the product taught by the reference Stewart et al or Plumstead, such differences would have been obvious to one of ordinary skill in the art as a routine

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modification of the product in the absence of a showing of unexpected results: see also
In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

10. Claims 21 and 46 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Plumstead or Passaretti.

Claims 21 and 46 are product-by-process claims. The product of Plumstead (p 1, right col, line 44 to p 2, right col, line 6) or Passaretti appears to be the same as or similar to the claimed product, a treated aqueous suspension of CaCO_3 , although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). "In the event any differences can be shown for the product of the product-by-process claims 21 and 46 as opposed to the product taught by the reference Plumstead or Passaretti, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

11. Claim 35 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Stewart et al.

Claim 35 is product-by-process claims. The product of Stewart et al (col 6. lines 18-59) or of Plumstead (p 4, col 1, lines 71-74) appears to be the same as or similar to

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the claimed product, a paper or board comprising a filler of CaCO_3 , although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). "In the event any differences can be shown for the product of the product-by-process claim 35 as opposed to the product taught by the reference Stewart et al, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

Allowable Subject Matter

12. Claims 4, 38 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 31 and 52 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 4 and 38: The previous art that comprises acid and CO_2 treatment of carbonates discloses only small quantities of acid in the process, [i.e.- less than 6 percent of the amount of CaCO_3 (Passaretti, Fig. 3 and col 4, lines 38-41)]. The use of larger relative amounts of acid is not anticipated or suggested by prior art.

Claim 45: Passaretti discloses that, upon addition of the acid, the pH drops initially but returns to a value of 8 within minutes, appearing to indicate a rapid reaction.

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Further support for a rapid reaction is the disclosure of the treatment in the papermaking furnish. Reacting the carbonates for 2-6 hours to prepare the fillers of the instant invention is neither disclosed nor made obvious by the process of the nearest prior art.

Claims 31 and 52: While there is a large body of prior art dealing with CaCO_3 fillers and a large body of art dealing with recycling white liquor and broke, the filler compositions are added to the new stock and not the recycle streams. The recycle streams contain fillers lost during the draining and forming process but new filler compositions are not added to these streams prior to their combination with the new stock. Thus the prior art does not suggest adding new filler compositions to the recycle streams alone.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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